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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,899	10/20/2004	Hirofumi Sakamoto	121572	6470

25944 7590 11/15/2007  
OLIFF & BERRIDGE, PLC  
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ALEXANDRIA, VA 22320-4850

EXAMINER
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BALDWIN, GORDON

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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11/15/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/511,899	<b>Applicant(s)</b> SAKAMOTO, HIROFUMI	
	<b>Examiner</b> Gordon R. Baldwin	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/15/2007 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claims 1-9** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The use of the limitation, "of a majority of partition walls" is considered to be new matter since support for the limitation cannot be readily found in the disclosure.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Narita Yoshinori (Japanese (Publication number 55-147154) (Application Number 54-055556)).**

Consider claim 1, 8 and 9, Yoshinori teaches a honeycomb structure with a plurality of partition walls that are in a quadrilateral sectional shape defined with the walls being at right angles to each other with the portion of the honeycombs structure in the outer circumference being made thicker in order to increase the strength of the partition wall, which is considered to include compression strength. (Claim 1, Fig. 2, and Page 4, lines 4-15 of the translation) By this teaching, a final product of a honeycomb structure with a stronger outer periphery with higher compression strength for all (not just a majority) of the partition walls of the outer periphery is considered to be taught. While the language of applicant's claim one states, "the joining of a plurality of honeycomb segments", may be considered to be different than the Yoshinori reference, this construction is considered to be an intermediate step in the creation of a final article, which is a unitary article functioning in the same manner and having the same characteristics as the Yoshinori reference.

**Claims 1, 8 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Hattori (U.S. Pat. No. 4,810,554)**

**Consider claims 1, 8 and 9,** Hattori discloses a ceramic honeycomb structures with quadrilateral cell and triangular cells arranged adjacent to each other. Hattori also discloses that the honeycomb structures of the prior art II are those having outer circumferential walls and partitions in zones of widths of about 10 mm in outer peripheries, with the thicknesses of these walls and partitions being 1.6 times those of partition walls at the center as shown in figure 1. (Col. 3 lines 65-69 and Col. 4 lines 1-10) Additionally, the partition walls of figure 2 are also shown to be in a quadrilateral relationship with each other in a right angle relationship to each other and the outer wall. By this teaching, a final product of a honeycomb structure with a stronger outer periphery with higher compression strength for all (not just a majority) of the partition walls of the outer periphery is considered to be taught.

**Claims 1, 8 and 9 are rejected under 35 U.S.C. 102(a) as being anticipated by Ito (U.S. Pub. No. 2001/0003728)**

**Consider claims 1, 8 and 9,** Ito discloses a ceramic honeycomb structure comprising lattice walls (partition walls) formed by a large number of cells which are channels for fluid; and peripheral walls, which cover the circumference of said lattice walls, in addition to the outer peripheral portion of the lattice walls containing a denser portion with a lower porosity than that of the inner peripheral portion of said lattice walls which are located inside said peripheral portion. (Para. 14 and 15) Ito also discloses that the thickness of the outer peripheral portion of said lattice walls is 0-400% larger

than that of the inner peripheral portion as a means for strengthening the outer peripheral portion, which would give a higher compression strength for the honeycomb structure. (Para. 19 and 20)

Additionally, the partition walls of figure 2 are also shown to be in a quadrilateral relationship with each other in a right angle relationship to each other and the outer wall. By this teaching, a final product of a honeycomb structure with a stronger outer periphery with higher compression strength for all (not just a majority) of the partition walls of the outer periphery is considered to be taught.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 2, 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Narita Yoshinori (Japanese (Publication number 55-147154) (Application Number 54-055556)).**

**Consider claims 2, 3, 6 and 7, Yoshinori teaches a honeycomb structure having honeycomb segments in the outer periphery of the honeycomb structure where the partition walls are perpendicular to the fluid passage with the outer portion of the honeycomb structure having thicker partition walls than the inner partition walls, providing greater compression strength. (Claim 1, Fig. 2, and Page 4, lines 4-15 of the**

translation) Additionally, Yoshinori teaches in figure 2 that the partition walls connect the opposing corners of the respective cells being rectangular in shape in addition to having triangular sectional shapes in a radial direction. (Fig. 2 and 4)

However, Yoshinori does not specifically teach the specific arrangement and orientation of partition walls to the outer skin with the direction of the cell to form an angle of 20 to 70 or 0-20 or 70-90 degrees with respect to a tangent to the outer periphery of the honeycomb structure. The range claimed by the applicant is large and it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the angle percentages of the fluid passages of the partition walls for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

**Claims 2, 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hattori (U.S. Pat. No. 4,810,554).**

**Consider claims 2, 3, 6 and 7,** Hattori discloses a ceramic honeycomb structures with quadrilateral cell and triangular cells arranged adjacent to each other. Hattori also discloses that the honeycomb structures of the prior art II are those having outer circumferential walls and partitions in zones of widths of about 10 mm in outer peripheries, thicknesses of these walls and partitions being 1.6 times those of partitions at the center as shown in figure 1. (Col. 3 lines 65-69 and Col. 4 lines 1-10) Additionally, the partition walls of figure 2 are also shown to be in a quadrilateral relationship with each other in a right angle relationship to each other and the outer

wall. By this teaching, a final product of a honeycomb structure with a stronger outer periphery with higher compression strength for all (not just a majority) of the partition walls of the outer periphery is considered to be taught.

However, Hattori does not specifically teach the specific arrangement and orientation of partition walls to the outer skin with the direction of the cell to form an angle of 20 to 70 or 0-20 or 70-90 degrees with respect to a tangent to the outer periphery of the honeycomb structure. The range claimed by the applicant is large and it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the angle percentages of the fluid passages of the partition walls for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

**Claims 2, 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito (U.S. Pub. No. 2001/0003728).**

**Consider claims 2, 3, 4 and 7,** Ito teaches the claimed invention (as stated above) but does not specifically teach the specific arrangement and orientation of partition walls to the outer skin with the direction of the cell to form an angle of 20 to 70 or 0–20 or 70-90 degrees with respect to a tangent to the outer periphery of the honeycomb structure. The range claimed by the applicant is large and it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the angle percentages of the fluid passages of the partition walls for the intended application, since it has been held that discovering an optimum value of a result



effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

**Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Narita Yoshinori (Japanese (Publication number 55-147154) (Application Number 54-055556)) as applied to claims 1-3 above, and further in view of Ogawa (Japanese Application No. JP55032232).**

**Consider claim 4,** Yoshinori teaches the claimed invention except that Yoshinori does not necessarily teach that the porosity of the outer partition walls is smaller than the porosity of the inner partition walls. However, Ogawa teaches that it would be advantageous to make a ceramic honeycomb structure where the outer peripheral walls have a decreased porosity, than the other partition walls of the honeycomb structure. (Abstract) It would have been obvious to a person of ordinary skill in the art at the time of the invention to combine the honeycomb structure of Yoshinori with the decreased porosity of Ogawa to increase the mechanical strength of the of the honeycomb structure. (Ogawa, abstract)

**Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hattori (U.S. Pat. No. 4,810,554).**

**Consider claim 5,** Hattori teaches the claimed invention except that it is known to have the cell density be greater in the outer partition walls rather than in the inner portion of the honeycomb structure. Specifically, Hattori teaches that it is known for honeycomb structures of the prior art III (fig. 3) are those having zones of widths of

about 10mm in the outer peripheries, in which zones are to have cell densities four times those at the center of the honeycomb structure. (Col. 4 lines 1-10)

However, Hattori does not specifically teach the specific arrangement and orientation of partition walls to the outer skin with the direction of the cell to form an angle of 20 to 70 degrees with respect to a tangent to the outer periphery of the honeycomb structure. The range claimed by the applicant is large and it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the angle percentages of the fluid passages of the partition walls for the intended application, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

Applicant's arguments filed 10/15/2007 have been fully considered but they are not persuasive.

Initially, the examiner would like to remind the applicant that there has been no agreement that Yoshinori fails to teach any portion of the claimed feature of the applicant's invention. The examiner has only agreed to further examine the claimed invention in light of the recently obtained translations of the Yoshinori reference, which have been enclosed.

The applicant's wording in the amended portion of claim 1 is not considered to lend any distinction between the prior art of Yoshinori and the claim invention. The partition walls of Yoshinori are still at right angles and since figure 2 is an example of a portion (approximately 25%) of a whole structure, the majority of the partition walls that are in the outer periphery of the honeycomb structure are going to have a larger compression strength due to the thickness of the partition walls (6) (or barrier walls, as stated in the translation). While the compression strength of the inner barrier walls (7) (partition walls) will have a decreased compression strength due to their decreased thickness, compared to the outer barrier walls (6) (or outer partition wall). (Page 4 of the Yoshinori translation and Fig. 2)

Applicant's arguments with respect to claim 5 have been considered but are moot in view of the new ground(s) of rejection.


***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon R. Baldwin whose telephone number is (571)272-5166. The examiner can normally be reached on M-F 7:45-5:15.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on 571-272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GRB

  
**JOHN J. ZIMMERMAN**  
**PRIMARY EXAMINER**